

**RESTORATION TIME IN MESH NETWORKS****ABSTRACT OF THE DISCLOSURE**

A restoration path planner minimizes cost while meeting restoration-time constraints of a network by reducing the worst-case number of cross-connections that must be performed in a network in the event of a single element failure. The planner involves optimization that  
5 identifies primary and restoration path plans for demands within the network such that the worst-case number of cross-connections at any node within the network is minimal and/or bounded. Embodiments further constrain the cost of the path plan. In one embodiment, restoration time is bounded and cost is relaxed until a solution is found. In another embodiment, the restoration time bound is relaxed to a limit while path plans and their costs are stored. These  
10 plans can later be chosen amongst for the desired balance of cost and restoration time. At least one approach to minimization of network cost involves maximizing sharing within restoration path plans.